11-10-3

2631

PTO/SB/21 (08-03)
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# TRANSMITTAL FORM

*(to be used for all correspondence after initial filing)*

| | |
|---|---|
| Application Number | 09/654,643 |
| Filing Date | September 5, 2000 |
| First Named Inventor | Pak Shing Chau |
| Art Unit | 2631 |
| Examiner Name | Bayard, Emmanuel |
| Total Number of Pages in This Submission: 17 | Attorney Docket Number: RA-194 |

## ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
- [x] Fee Attached
- [ ] Amendment/Reply
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
- [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Technology Center (TC)
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to TC **(AppealN otice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below): Return Receipt Postcard

Remarks

## SIGNATURE OF APPLICANT,A TTORNEY, OR AGENT

| | |
|---|---|
| Firm or Individual name | Silicon Edge Law Group LLP - Arthur J. Behiel, Patent Attorney |
| Signature | |
| Date | October 28, 2003 |

## CERTIFICATE OF TRANSMISSION/MAILING

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| Signature | | Date | 10/28/03 |

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE



# FEE TRANSMITTAL for FY 2004

*Effective 10/01/2003. Patent fees are subject to annual revision.*

☐ Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT** ($) 180.00

| Complete if Known | |
|---|---|
| Application Number | 09/654,643 |
| Filing Date | 09/05/00 |
| First Named Inventor | Pak Shing Chau |
| Examiner Name | Bayard, Emmanuel |
| Art Unit | 2631 |
| Attorney Docket No. | RA-194 |

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## METHOD OF PAYMENT *(check all that apply)*

☑ Check #1620 ☐ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number

Deposit Account Name

**The Director is authorized to:** *(check all that apply)*

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 1001 | 770 | 2001 | 385 | Utility filing fee | |
| 1002 | 340 | 2002 | 170 | Design filing fee | |
| 1003 | 530 | 2003 | 265 | Plant filing fee | |
| 1004 | 770 | 2004 | 385 | Reissue filing fee | |
| 1005 | 160 | 2005 | 80 | Provisional filing fee | |

SUBTOTAL (1) ($)

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

| | Extra Claims | | Fee from below | Fee Paid |
|---|---|---|---|---|
| Total Claims | | -20** = | | X = |
| Independent Claims | | - 3** = | | X = |
| Multiple Dependent | | | | = |

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description |
|---|---|---|---|---|
| 1202 | 18 | 2202 | 9 | Claims in excess of 20 |
| 1201 | 86 | 2201 | 43 | Independent claims in excess of 3 |
| 1203 | 290 | 2203 | 145 | Multiple dependent claim, if not paid |
| 1204 | 86 | 2204 | 43 | ** Reissue independent claims over original patent |
| 1205 | 18 | 2205 | 9 | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 1051 | 130 | 2051 | 65 | Surcharge - late filing fee or oath | |
| 1052 | 50 | 2052 | 25 | Surcharge - late provisional filing fee or cover sheet | |
| 1053 | 130 | 1053 | 130 | Non-English specification | |
| 1812 | 2,520 | 1812 | 2,520 | For filing a request for *ex parte* reexamination | |
| 1804 | 920* | 1804 | 920* | Requesting publication of SIR prior to Examiner action | |
| 1805 | 1,840* | 1805 | 1,840* | Requesting publication of SIR after Examiner action | |
| 1251 | 110 | 2251 | 55 | Extension for reply within first month | |
| 1252 | 420 | 2252 | 210 | Extension for reply within second month | |
| 1253 | 950 | 2253 | 475 | Extension for reply within third month | |
| 1254 | 1,480 | 2254 | 740 | Extension for reply within fourth month | |
| 1255 | 2,010 | 2255 | 1,005 | Extension for reply within fifth month | |
| 1401 | 330 | 2401 | 165 | Notice of Appeal | |
| 1402 | 330 | 2402 | 165 | Filing a brief in support of an appeal | |
| 1403 | 290 | 2403 | 145 | Request for oral hearing | |
| 1451 | 1,510 | 1451 | 1,510 | Petition to institute a public use proceeding | |
| 1452 | 110 | 2452 | 55 | Petition to revive - unavoidable | |
| 1453 | 1,330 | 2453 | 665 | Petition to revive - unintentional | |
| 1501 | 1,330 | 2501 | 665 | Utility issue fee (or reissue) | |
| 1502 | 480 | 2502 | 240 | Design issue fee | |
| 1503 | 640 | 2503 | 320 | Planti ssue fee | |
| 1460 | 130 | 1460 | 130 | Petitions to the Commissioner | |
| 1807 | 50 | 1807 | 50 | Processing fee under 37 CFR 1.17(q) | |
| 1806 | 180 | 1806 | 180 | Submission of Information Disclosure Stmt | 180.00 |
| 8021 | 40 | 8021 | 40 | Recording each patent assignment per property (times number of properties) | |
| 1809 | 770 | 2809 | 385 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 1810 | 770 | 2810 | 385 | For each additional invention to be examined (37 CFR 1.129(b)) | |
| 1801 | 770 | 2801 | 385 | Request for Continued Examination (RCE) | |
| 1802 | 900 | 1802 | 900 | Request for expedited examination of a design application | |

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 180.00

## SUBMITTED BY

(Complete *(if applicable)*)

| | | | | | |
|---|---|---|---|---|---|
| Name *(Print/Type)* | Arthur J. Behiel | Registration No. *(Attorney/Agent)* | 39,603 | Telephone | 925.621.2113 |
| Signature | | | | Date | October 29, 2003 |

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| Applicants: | Pak Shing Chau, Haw-Jyh Liaw, Jun Kim and Jared L. Zerbe |
| Assignee: | Rambus, Inc. |
| Title: | "LOW-LATENCY EQUALIZATION IN MULTI-LEVEL, MULTI-LINE COMMUNICATION SYSTEMS" |

| | | | |
|---|---|---|---|
| Serial No.: | 09/654,643 | Filed: | 09/05/00 |
| Examiner: | Bayard, Emmanuel | Tel: | (703) 308-9573 |
| Docket No.: | RA-194 | Art Unit: | 2631 |



Mail Stop Issue Fee
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

## SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56, §1.97 and §1.98, Applicants bring the 216 documents listed on the enclosed forms PTO-1449 to the Examiner's attention in the above-captioned application. Citation of the listed documents shall not be construed as:

1. an admission that the documents are necessarily prior art with respect to the instant application;
2. a representation that a search has been made; or
3. an admission that the information cited is, or is considered to be, material to patentability as defined in §1.56(b).



I hereby certify that this correspondence is being deposited with the United States Postal Service via First Class Mail and is addressed to: Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

10.28.03
Date

Laurie Moreno

Respectfully submitted,

Arthur J. Behiel
Attorney for Applicants
Reg. No. 39,603

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|---|---|
| U.S. Department of Commerce, Patent and Trademark Office | Serial No.: 09/654,643 |
| | Filing Date: 09/05/00 |
| SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT | First Named Inventor: Pak Shing Chau |
| | Group Art Unit: 2631 |
| "Low-Latency Equalization in Multi-Level, Multi-Line Communication Systems" | Examiner Name: Bayard, Emmanuel |
| | Attorney Docket No.: RA-194 |

## U.S. Patent Documents

| *Examiner Initial | | Document Number | Date | Name | Class | Subclass | Filing Date, If Appropriate |
|---|---|---|---|---|---|---|---|
| | A | 4,481,625 | 11/06/84 | Roberts, et al | 370 | 85 | |
| | B | 5,534,795 | 07/09/96 | Wert, et al | 326 | 81 | |
| | C | 5,534,798 | 07/09/96 | Phillips, et al | 326 | 108 | |
| | D | 5,663,663 | 09/02/97 | Cao, et al | 326 | 87 | |
| | E | 5,751,168 | 05/12/98 | Speed, III et al | 326 | 83 | |
| | F | 5,757,712 | 05/26/98 | Nagel, et al | 365 | 226 | |
| | G | 5,867,010 | 02/02/99 | Hinedi, et al | 323 | 282 | |
| | H | 5,973,508 | 10/26/99 | Nowak, et al | 326 | 81 | |
| | I | 5,986,472 | 11/16/99 | Hinedi, et al | 326 | 68 | |
| | J | 6,097,215 | 08/01/00 | Bialas Jr., et al | 326 | 68 | |
| | K | 6,140,841 | 10/31/00 | Suh | 326 | 60 | |
| | L | 6,160,421 | 12/12/00 | Barna | 326 | 63 | |
| | M | 4,748,637 | 05/31/88 | Bishop, et al | 375 | 7 | |
| | N | 5,254,883 | 10/19/93 | Horowitz, et al | 307 | 443 | |
| | O | 5,608,755 | 03/04/97 | Rakib | 375 | 219 | |
| | P | 5,546,042 | 08/13/96 | Tedrow, et al | 327 | 538 | |
| | Q | 5,194,765 | 03/16/93 | Dunlop, et al | 307 | 443 | |
| | R | 5,254,883 | 10/19/93 | Horowitz, et al | 307 | 443 | |



| Examiner | Date Considered |
|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant.

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| U.S. Department of Commerce, Patent and Trademark Office | Serial No.: 09/654,643 |
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| | Group Art Unit: 2631 |
| "Low-Latency Equalization in Multi-Level, Multi-Line Communication Systems" | Examiner Name: Bayard, Emmanuel |
| | Attorney Docket No.: RA-194 |

## U.S. Patent Documents

| *Examiner Initial | | Document Number | Date | Name | Class | Subclass | Filing Date, If Appropriate |
|---|---|---|---|---|---|---|---|
| | S | 5,513,327 | 04/30/96 | Farmwald, et al | 395 | 309 | |
| | T | 5,023,488 | 06/11/91 | Gunning | 307 | 475 | |
| | U | 5,483,110 | 01/09/96 | Koide, et al | 307 | 147 | |
| | V | 5,287,108 | 02/15/94 | Mayes, et al | 341 | 156 | |
| | W | 5,977,798 | 11/02/99 | Zerbe | 329 | 98 | |
| | X | RE30,182 | 12/25/79 | Howson | 325 | 42 | |
| | Y | 2,912,684 | 11/10/59 | F.G. Steele | 340 | 347 | |
| | Z | 3,051,901 | 08/28/62 | R.E. Yaegar | 325 | 38 | |
| | AA | 3,078,378 | 02/19/63 | C.H. Burley, et al | 307 | 88.5 | |
| | AB | 3,267,459 | 08/16/66 | J.S. Chomicki, et al | 340 | 347 | |
| | AC | 3,484,559 | 12/16/69 | D.F. Rigby | 179 | 18 | |
| | AD | 3,508,076 | 04/21/70 | R.O. Winder | 307 | 235 | |
| | AE | 3,510,585 | 05/05/70 | R.B. Stone | 325 | 38 | |
| | AF | 3,560,856 | 02/02/71 | Hisashi, Kaneko | 375 | 292 | |
| | AG | 3,569,955 | 03/09/71 | Maniere | 340 | 347 | |
| | AH | 3,571,725 | 03/23/71 | Kaneko, et al | 328 | 14 | |
| | AI | 3,587,088 | 06/22/71 | Franaszek | 340 | 347 | |
| | AJ | 3,648,064 | 03/07/72 | Mukai, et al | 307 | 213 | |



| Examiner | Date Considered |
|---|---|

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| "Low-Latency Equalization in Multi-Level, Multi-Line Communication Systems" | Examiner Name: Bayard, Emmanuel |
| | Attorney Docket No.: RA-194 |

## U.S. Patent Documents

| *Examiner Initial | | Document Number | Date | Name | Class | Subclass | Filing Date, If Appropriate |
|---|---|---|---|---|---|---|---|
| | AK | 3,697,874 | 10/10/72 | Kaneko | 325 | 38 A | |
| | AL | 3,731,199 | 05/01/73 | Tazaki, et al | 325 | 38 A | |
| | AM | 3,733,550 | 05/15/73 | Tazaki, et al | 325 | 38 A | |
| | AN | 3,753,113 | 08/14/73 | Maruta, et al | 325 | 38 A | |
| | AO | 3,754,237 | 08/21/73 | de Laage de Meux | 340 | 347 DD | |
| | AP | 3,761,818 | 09/25/73 | Tazaki, et al | 325 | 38 A | |
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| | AR | 3,798,544 | 03/19/74 | Norman | 325 | 38 A | |
| | AS | 3,832,490 | 08/27/74 | Leonard | 178 | 68 | |
| | AT | 3,860,871 | 01/14/75 | Hinoshita, et al | 325 | 38 B | |
| | AU | 3,876,944 | 04/08/75 | Mack, et al | 325 | 141 | |
| | AV | 3,927,401 | 12/16/75 | McIntosh | 340 | 347 DD | |
| | AW | 3,978,284 | 08/31/76 | Yoshino, et al | 178 | 69.5 R | |
| | AX | 3,988,676 | 10/26/76 | Whang | 325 | 38 A | |
| | AY | 4,038,564 | 07/26/77 | Hakata | 307 | 205 | |
| | AZ | 4,070,650 | 01/24/78 | Ohashi, et al | 340 | 172 | |
| | BA | 4,086,587 | 04/25/78 | Lender | 340 | 347 DD | |
| | BB | 4,097,859 | 06/27/78 | Looschen | 340 | 347 DD | |



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| | Attorney Docket No.: RA-194 |

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|---|---|---|---|---|---|---|---|
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| | BD | 4,181,865 | 01/01/80 | Kohyama | 307 | 361 | |
| | BE | 4,373,152 | 02/08/83 | Jacobsthal | 340 | 347 | |
| | BF | 4,382,249 | 05/03/83 | Jacobsthal | 340 | 347 DD | |
| | BG | 4,403,330 | 09/06/83 | Meyer | 375 | 4 | |
| | BH | 4,408,135 | 10/04/83 | Yuyama, et al | 307 | 474 | |
| | BI | 4,408,189 | 10/04/83 | Betts, et al | 340 | 347 DD | |
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| | BK | 4,438,491 | 03/20/84 | Constant | 364 | 200 | |
| | BL | 4,571,735 | 02/18/86 | Furse | 375 | 20 | |
| | BM | 4,602,374 | 07/22/86 | Nakamura, et al | 375 | 17 | |
| | BN | 4,628,297 | 12/09/86 | Mita, et al | 340 | 347 DD | |
| | BO | 4,779,073 | 10/18/88 | Iketani | 341 | 55 | |
| | BP | 4,805,190 | 02/14/89 | Jaffre, et al | 375 | 17 | |
| | BQ | 4,821,286 | 04/11/89 | Graczyk, et al | 375 | 4 | |
| | BR | 4,823,028 | 04/18/89 | Lloyd | 307 | 355 | |
| | BS | 4,841,301 | 06/20/89 | Ichihara | 341 | 126 | |
| | BT | 4,860,309 | 08/22/89 | Costello | 375 | 17 | |



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|---|---|---|---|---|---|---|---|
| | BU | 4,875,049 | 10/17/89 | Yoshida | 341 | 159 | |
| | BV | 4,888,764 | 12/19/89 | Haug | 370 | 85.1 | |
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| | BX | 5,045,728 | 09/03/91 | Crafts | 307 | 475 | |
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| | BZ | 5,121,411 | 06/09/92 | Fluharty | 375 | 20 | |
| | CA | 5,172,338 | 12/15/92 | Mehrotra, et al | 365 | 185 | |
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| | CC | 5,230,008 | 07/20/93 | Duch, et al | 375 | 19 | |
| | CD | 5,243,625 | 09/07/93 | Verbakel, et al | 375 | 17 | |
| | CE | 5,280,500 | 01/18/94 | Mazzola, et al | 375 | 17 | |
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| | CG | 5,315,175 | 05/24/94 | Langner | 307 | 443 | |
| | CH | 5,331,320 | 07/19/94 | Cideciyan, et al | 341 | 56 | |
| | CI | 5,408,498 | 04/18/95 | Yoshida | 375 | 286 | |
| | CJ | 5,425,056 | 06/13/95 | Maroun, et al | 375 | 316 | |
| | CK | 5,426,739 | 06/20/95 | Lin, et al | 395 | 325 | |
| | CL | 5,438,593 | 08/01/95 | Karam, et al | 375 | 317 | |



| Examiner | Date Considered |
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|---|---|---|---|---|---|---|---|
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| | CP | 5,525,983 | 06/11/96 | Patel, et al | 341 | 57 | |
| | CQ | 5,663,631 | 09/02/97 | Kajiura, et al | 322 | 29 | |
| | CR | 5,640,605 | 06/17/97 | Johnson, et al | 395 | 881 | |
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| | DA | 5,898,734 | 04/27/99 | Nakamura, et al | 375 | 287 | |
| | DB | 5,917,340 | 06/29/99 | Manohar, et al | 326 | 82 | |
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| | DD | 5,942,994 | 08/24/99 | Lewiner, et al | 341 | 56 | |



| Examiner | Date Considered |
|---|---|

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|---|---|---|---|---|---|---|---|
| | DE | 5,946,355 | 08/31/99 | Baker | 375 | 286 | |
| | DF | 5,949,280 | 09/07/99 | Sasaki | 329 | 303 | |
| | DG | 5,969,579 | 10/19/99 | Hartke, et al | 332 | 116 | |
| | DH | 5,969,648 | 10/19/99 | Garnett | 341 | 56 | |
| | DI | 6,018,550 | 01/25/00 | Emma, et al | 375 | 317 | |
| | DJ | 6,038,260 | 03/14/00 | Emma, et al | 375 | 259 | |
| | DK | 6,049,229 | 04/11/00 | Manohar, et al | 326 | 83 | |
| | DL | 6,052,390 | 04/18/00 | Deliot, et al | 370 | 258 | |
| | DM | 6,067,326 | 05/23/00 | Jonsson, et al | 375 | 286 | |
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| | DQ | 6,101,561 | 08/08/00 | Beers, et al | 710 | 66 | |
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| | Group Art Unit: 2631 |
| "Low-Latency Equalization in Multi-Level, Multi-Line Communication Systems" | Examiner Name: Bayard, Emmanuel |
| | Attorney Docket No.: RA-194 |

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